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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/851,313	05/09/2001	Tatsuya Usami	NEC01P069-MSb	2820

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EXAMINER

MALDONADO, JULIO J

ART UNIT PAPER NUMBER

2823

DATE MAILED: 05/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/851,313

Applicant(s)

USAMI, TATSUYA

Examiner

Julio J. Maldonado

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) 9-30 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 May 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Drawings

2. Figures 5-7 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

4. Claims 5, 7 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Jin et al. (U.S. 6,284,675).

In reference to claims 5, 7 and 8, Jin et al. (Fig.1a-g) in a related method to form multiple dielectric films teach forming a first insulating layer (144) having a lower dielectric constant than silicon oxide; forming a second insulating film composed of

hydrogen silsesquioxane (not shown) having an Si-H group and formed on and being in contact with a top of said first insulating layer and forming a silicon oxide layer (146) on top of said second insulating layer (column 2, line 15 – column 4, line 62).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicants admitted prior art in the instant application in view of Jin et al. ('675).

In reference to claims 1-4, the admitted prior art in a related art to the formation of dielectric films teach a semiconductor device, in which a multi-layered insulation film is formed on a semiconductor substrate and wires (6) are formed in said multi-layered insulation film, characterized in that said multi-layered insulation film comprises a first insulation layer (2) comprising an organopolysiloxane layer having a lower dielectric constant than silicon oxide; and a second insulation film (4) composed of silicon oxide (page 1, line 5 – page 6, line 13).

The prior art fail to teach that the insulating layer is composed of hydrogen silsesquioxane having a Si-H group and being in contact with a top of said insulating layer and a silicon oxide layer on top of said silsesquioxane layer. However, Jin et al. (Fig.1a-g) in a related method to form multiple dielectric films teach a first insulating layer (144) having a lower dielectric constant than silicon oxide; a second insulating film

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composed of hydrogen silsesquioxane (not shown) having an Si-H group and being in contact with a top of said first insulating layer and a silicon oxide layer (146) on top of said second insulating layer (column 4, lines 50-57). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to include a hydrogen silsesquioxane as taught by Jin et al. into the multi-layered insulating film of the prior art, since hydrogen silsesquioxane layers are used as adhesion promoters between layers (column 4, lines 50-62).

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jin et al. ('675) as applied to claims 5, 7 and 8 above, and further in view of the applicants admitted prior art in the instant application.

In reference to claim 6, Jin et al. substantially teach all aspects of the invention but fail to show the first insulating layer is composed of an organopolysiloxane material. However, the prior art in a related method to form multi-layered dielectric layers teach a first insulating layer (2) composed of an organopolysiloxane material (page 1, line 5 – page 6, line 13). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to utilize organopolysiloxane materials as the first insulating layer as taught by the prior art into the multi-layered dielectric film structure of Jin et al., since such material would prevent crosstalk from occurring (page 2, lines 11-13).

Conclusion

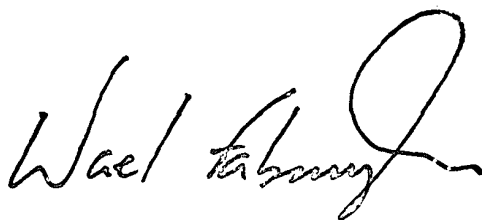
Papers related to this application may be submitted directly to Art Unit 2823 by facsimile transmission. Papers should be faxed to Art Unit 2823 via the Art Unit 2823

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Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2823 Fax Center number is **(703) 305-3432**. The Art Unit 2823 Fax Center is to be used only for papers related to Art Unit 2823 applications.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Julio J. Maldonado** at **(703) 306-0098** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via julio.maldonado@uspto.gov. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy, can be reached on (703) 308-4918.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Group 2800 Receptionist** at **(703) 308-0956**.

A handwritten signature in black ink, appearing to read 'Wael Fahmy', with a large, stylized loop at the end.

SUPERVISORY PRIMARY EXAMINER
TECHNOLOGY CENTER 2800

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